HG88

Mk II

INTEGRATED STEREO AMPLIFIER

The HG.88 11 Integrated Stereo Amplifier

Installation and Operation Instructions

We recommend that these Instructions be read fully and carefully before any attempt is made to connect up or use the equipment.

INITIAL CHECK. Check that all valves are firmly seated in their holders and have not become loose in transit, check also that the dial bulb is firmly screwed into its holder. When the amplifier has been supplied in a Teak Case the chassis must first be removed by unscrewing the four 4 BA retaining screws located underneath the case and drawing out the chassis from the back of the case. Before replacing the chassis set the Mains Voltage Adjustment Panel (10) to the correct voltage and check that the Mains Transformer connections located underneath the chassis are for the correct range, by reference to Diagram No.4. A label will normally be attached to the amplifier indicating which range it has been set for at the factory, but it is wise to double check this as serious damage will result if an amplifier set for 105-140V. range is used on say a 230V. supply. Check also that the Mains Fuse (14) is securely in place and is of the correct rating.

MAINS INPUT Connect a suitable 3-pin Mains Plug to the 3-core mains lead (12) provided, taking care to see that the GREEN wire is taken to the EARTH pin, RED to 'LIVE' and BLACK to 'NEUTRAL'. (On 105-140V Models 2-core lead supplied).

EARTH SOCKET. Auxiliary equipment which requires to be earthed, e.g. a gramophone motor, should be connected to the Earth Socket (13) located at the rear of the chassis, on no account should earth connections be made direct to the chassis.

A.C. OUTLETS. For convenience of installation dual A.C. Outlets (15) are provided at the rear of the chassis and may be used to supply gramophone motors, self-powered FM Receivers etc. Both sockets are 'LIVE' and are unaffected by the ON/OFF toggle switch on the amplifier.

LOUDSPEAKER CONNECTIONS. Connect the loudspeaker leads to the 2-pin plugs provided and insert these in the Impedance Matching Panels (16 and 17) selecting the impedance nearest that of the loudspeaker being used, e.g. a 15 ohm loudspeaker would be used on the 16 ohm position. Note that the LEFT-HAND Loudspeaker should be connected to No.16 (Channel 'A') and the RIGHT-HAND Loudspeaker to No.17 (Channel 'B'). If one loudspeaker only is being used initially a 15 ohm 10 watt resistor should be connected across the output channel not in use. The simplest way to do this is to connect the resistor across one of the 2-pin loudspeaker plugs provided and insert the plug in the Impedance Matching Panel as if a loudspeaker were being used.

PHASING. For satisfactory performance it is important that the two loudspeakers should be correctly phased, this may most easily be checked as follows. Place the two loudspeakers fairly close together and play a mono signal through the equipment; standing so as to be an equal distance from the two loudspeakers the sound should appear to come from

a point mid-way between the loudspeakers and the source should be clearly defined. If out of phase the source will be indefinite and one pair of speaker leads should be reversed.

INPUT CONNECTIONS. All Input Sockets are grouped on a single Panel (18) which also includes the pre-set DISC volume controls. Good quality lightweight, low capacity screened flex, with an insulated outer covering must be used for all input connections. The braiding is soldered to the body of the miniature co-axial plugs provided, the centre conductor to the centre pin of the plug.

Input Socket.	Selector.	Characteristic.	Sensitivity	Impedance.
DISC 1.	Magnetic (M)	RIAA.	4 M/V	50-100K
DISC 2.	" (M)	"	80 "	1 megohm.
DISC 1.	Crystal (X)	Flat	6 "	50- 100K
DISC 2.	" (X)	"	150 "	1 megohm.
RADIO	Radio.	"	150 "	500K.
TAPE 1.	Comp.	CCIR.	4 "	100K.
TAPE 2.	Comp.	CCIR.	25 "	500K.
TAPE 1.	Flat.	Flat.	25 "	100K.
TAPE 2.	"	"	150 "	500K.

* For 12 watts output.

DISC. A separate table gives recommended connections for the more popular Stereo and Mono pick-ups, generally speaking magnetic pick-ups should be used on Disc 1 with the Input Selector at DISC (M) and Crystal Pick-ups on DISC 2 with the Input Selector at DISC (X). When in doubt the advice of the individual pick-up manufacturer should be sought. Pre-set volume controls are provided on both DISC Inputs and should be adjusted ty trial and error so that the normal listening levels the Main Volume Control is at approx. mid-position. With very low output pick-ups it will probably be found necessary to set the pre-set controls to maximum i.e. fully clockwise. Care should be taken to adjust the pre-set controls in step otherwise stereo balance will be affected.

RADIO. Dual radio inputs are provided and may be used for two separate receivers - FM and AM or FM and TV or for a Stereo Receiver when this service becomes available. No pre-set volume controls are provided as someform of panel or pre-set control will normally be found on the average receiver. On our own FM receivers the Variable Model has a panel control and the Switched Model a pre-set control.

TAPE. Two pairs of Tape Replay inputs are provided which together with two ~~Input~~ Selector positions provide four possible alternatives. The characteristics of Tape Decks and Tape Recorders vary so widely that it has been impossible to draw up a table of recommended connections but generally speaking Tape Replay direct from heads, i.e. with Tape Deck, will be via TAPE 1/Selector TAPE Comp. and from the built-in Tape Replay Pre-amplifier in a complete Tape Recorder via TAPE 2/Selector TAPE Flat. For Tape Recording dual outputs are available providing 100/250 m/v, according to the input signal and designed to feed into not less than 250K. This output is unaffected by the settings of TONE, FILTER and VOLUME Controls.

NOTE: In addition to a TAPE DECK a Record amplifier/Bias Oscillator are essential, These are NOT Provided in the HG.88 II, but will usually be sold as a 'Tape Unit'. In cases of difficulty the advice of the individual Tape Recorder Manufacturer should be sought.

THE HG88 Mk.11 Integrated STEREO AMPLIFIER

Amendment to Installation and Operation Instructions.

LOUDSPEAKER CONNECTIONS

The Loudspeakers should be connected to the four-way Terminal Block located immediately next to the A.C. Outlet Panel at the rear of chassis. Small spade shape terminals are provided to facilitate connection. The impedance to suit the speakers being used is selected on the Impedance Matching Panels on the Output Transformers by means of the two shorting links provided. Use the range nearest the impedance of speaker i.e. a 15 ohm loudspeaker would be used on the 16 ohm range. If one loudspeaker only is being used initially, a 15 ohm 10 watt resistor should be connected across the output channel not in use.

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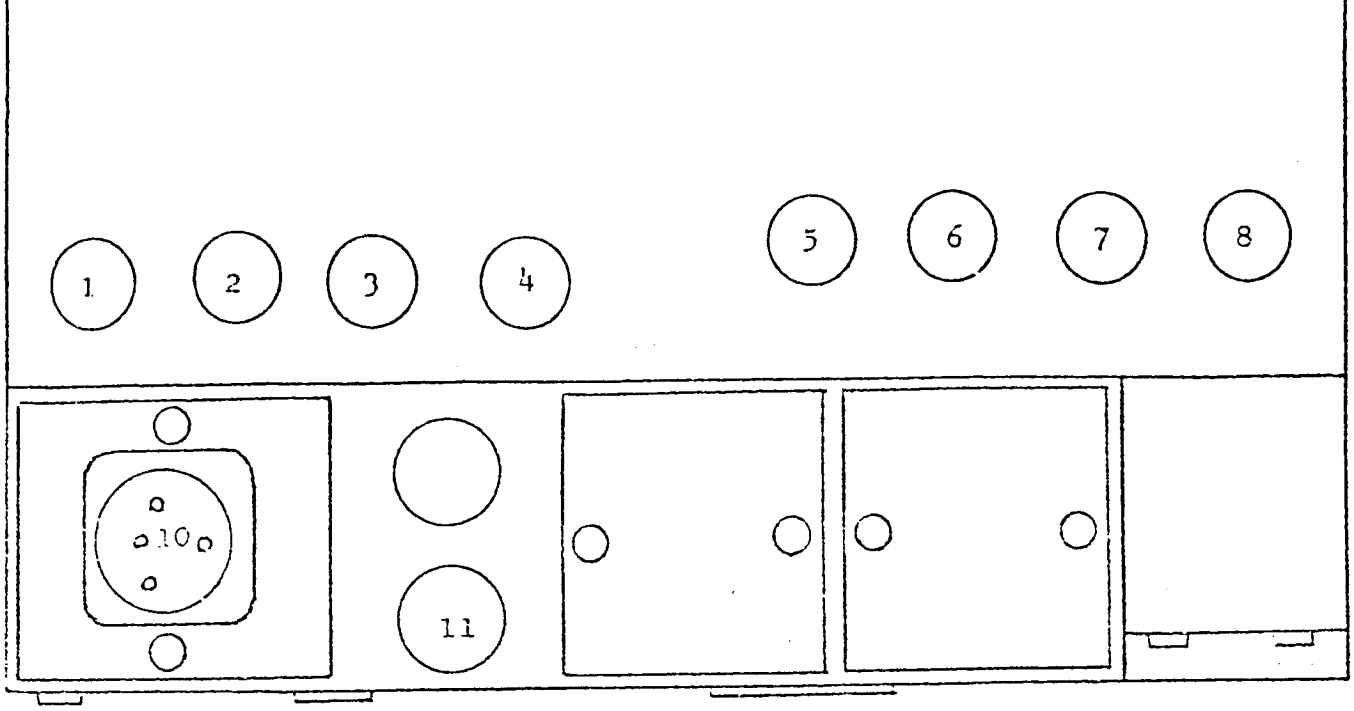
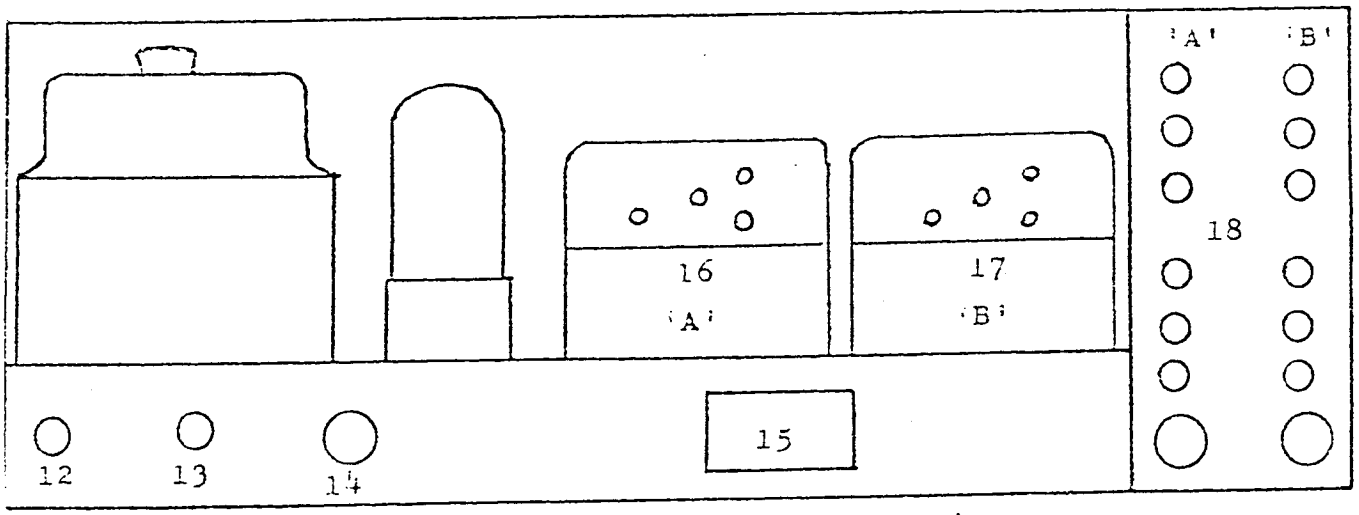
REMOTE CONTROL

On current production models of the HG88 Mk.11 provision is now being made for the connection of a remote BALANCE/VOLUME CONTROL Unit. This provision takes the form of a 5-way Socket on the Front Panel located between the SELECTOR & BASS Controls. The position of the Indicator Light has also been altered and this now appears between the TREBLE and VOLUME Controls. The Remote Control Unit itself will be offered as an optional extra and will be available within approximately 6/8 weeks.



PLAN VIEW (Diagram No. 1.)



REAR VIEW (Diagram No. 2.)

KEY:-

Diagrams No. 1 and 2.

2,3,4. Mullard ECL86 Valves.

6. " ECC83 "

8. " EF86 "

Dial Bulb, 8v. .15A. L.E.S.

Mains Voltage Adjustment Panel. 105-117-140v and 210-225-245. (See Diagram No. 4.)

Mullard GZ34 Valve.

3-core Mains Lead. (105 - 140v. Models 2-core lead supplied.

Earth Socket:

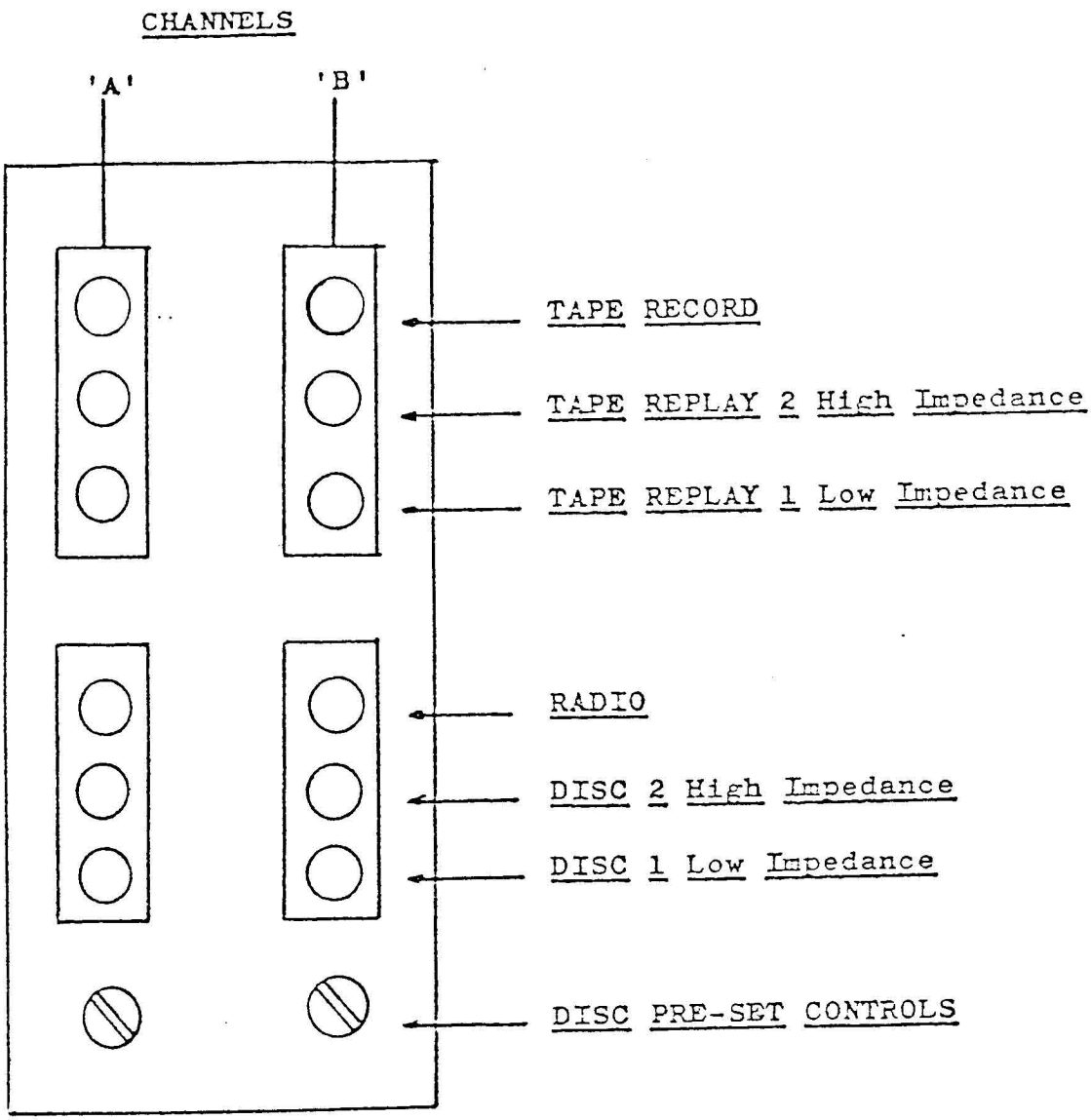
Mains Primary Fuse. ½" glass cartridge patten. Surge proof type. Rating:- 210-245v. 2.5A. 105-140v. 2.5A.

Dual A.C. Outlets.

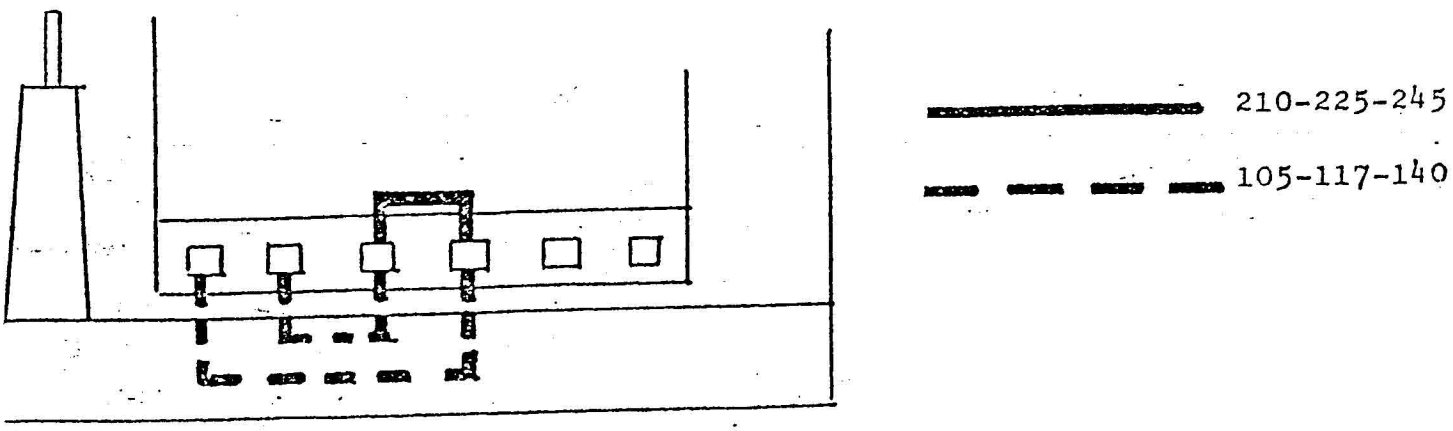
Output Impedance Matching Panel. 4-8-16 ohms. Channel 'A'. Left-Hand Loudspeaker.

Output Impedance Matching Panel. 4-8-16 ohms. Channel 'B'. Right-Hand Loudspeaker.

Input Socket Panel - see Diagram No. 3.



INPUT SOCKET PANEL
(Diagram No. 3.)



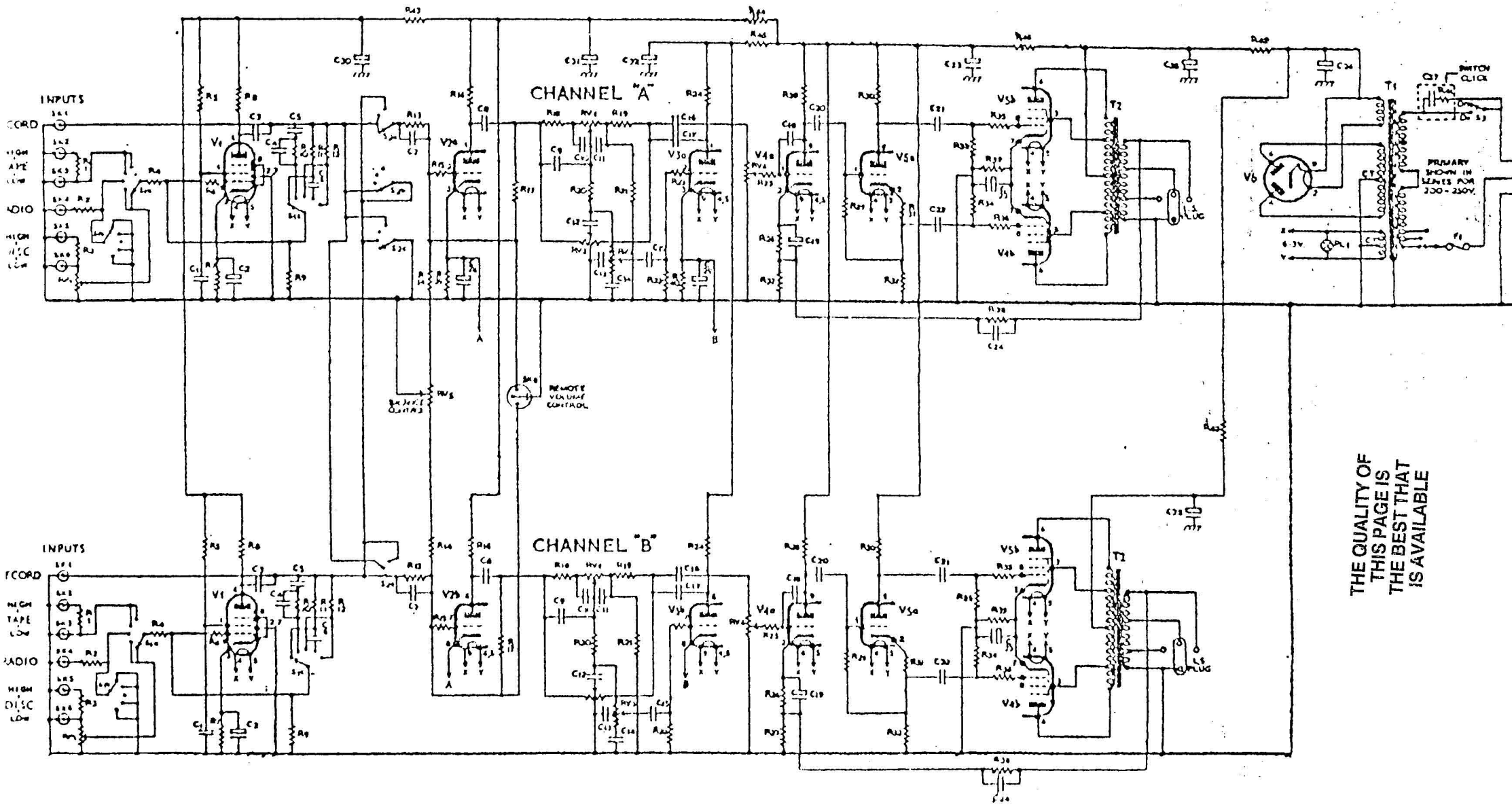
\IN TRANSFORMER CONNECTIONS (Diagram No. 4.)

HG68 MkII INTEGRATED STEREO AMPLIFIER COMPONENT VALUES

SERIES II

Resistors

	Values	Wattage	Tolerance	Type
R1	390K ohms	¼ watt	10%	Carbon
R2	390K "	" "	"	"
R3	1M "	" "	"	"
R4	100K "	" "	"	"
R5	1M "	½ "	"	High Stability Carbon
R6	4.7K "	¼ "	"	"
R7	2.2K "	" "	"	"
R8	220K "	½ "	"	High Stability Carbon
R9	1M "	¼ "	"	"
R10	1M "	" "	"	"
R11	680K "	" "	"	"
R12	150K "	" "	"	"
R13	150K "	" "	"	"
R14	22K "	" "	"	"
R15	4.7K "	" "	"	"
R16	220K "	" "	"	"
R17	2.2M "	" "	"	"
R18	100K "	" "	"	"
R19	220K "	" "	"	"
R20	270K "	" "	"	"
R21	220K "	" "	"	"
R22	560K "	" "	"	"
R23	4.7K "	" "	"	"
R24	120K "	" "	"	"
R25	4.7K "	" "	"	"
R26	3.3K "	" "	"	"
R27	220 "	" "	"	"
R28	220K "	" "	"	"
R29	1M "	" "	"	"
R30	56M "	" "	"	"
R31	2.2K "	" "	"	"
R32	56K "	" "	"	"
R33	270K "	" "	"	"
R34	270K "	" "	"	"
R35	22K "	" "	"	"
R36	22K "	" "	"	"
R37	150 "	2 "	5%	Carbon or Wire Wound
R38	5.6K "	¼ "	10%	Carbon
R39	1K "	" "	"	"
R40	2.2K "	" "	"	"
R41	Part of SFK 24R suppressor			
R42	330 ohms	3 watt	5%	Wire Wound
R43	22K "	¼ "	10%	Carbon
R44	22K "	" "	"	"
R45	22K "	" "	"	"
R46	4.7K "	½ "	"	"



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"RD" STEREO AMPLIFIER, MODEL HG88 Mk.II SERIES 2.

HG 88 Mk.II INTEGRATED STEREO AMPLIFIER COMPONENT VALUES

SERIES II

Capacitors

	Value	Voltage	Tolerance	Type
C1	.1 uf	400	20%	Polyester
C2	100 uf	15	-	Electrolytic
C3	.1 uf	400	20%	Polyester
C4	75 pf	350	5%	Polystyrene
C5	270 pf	125/350	5%	"
C6	150 pf	125/350	5%	"
C7	47 pf	125/350	5%	"
C8	47000 pf	400	10%	Polyester
C9	75 pf	125/350	5%	Polystyrene
C10	4700 pf	400	10%	Polyester
C11	4700 pf	400	10%	"
C12	75 pf	125/350	5%	Polystyrene
C13	220 pf	125/350	5%	"
C14	120 pf	125/350	5%	"
C15	4700 pf	400	10%	Polyester
C16	22000 pf	400	10%	"
C17	22000 pf	400	10%	"
C18	470/500 pf	125/350	10%	Polystyrene
C19	40 uf	16	-	Electrolytic
C20	22000 pf	400	10%	Polyester
C21	.1 uf	400	10%	"
C22	.1 uf	400	10%	"
C23	40 uf	16	-	Electrolytic
C24	470/500 pf	125/350	10%	Polystyrene
C25	24 uf	350	-	Electrolytic
C26	50 uf	450	-	"
C27	Part of SFK 24R suppressor			
C28	100 uf	15	-	Electrolytic
C29	100 uf	15	-	"
C30	24 uf	350	-	"
C31	24 uf	350	-	"
C32	24 uf	350	-	"
C33	24 uf	350	-	"

PR1	100K pre-set volume control		
RV1	1 meg LIN. BASS CONTROL	Matched ±	1 DB
RV2	500K LIN. CT TREBLE CONTROL	"	"
RV3	" " " FILTER "	"	"
RV4	" LOG. VOLUME "	"	"
RV5	250K LIN. BALANCE "	"	"

S1	a.b.c. 6-pole 5-way Input Switch
S2	a.b.c.d.4-pole 4-way Function Switch

F1	1 amp surge proof fuse for 200 - 250 v.
F1	2 " " " " " 105 - 140 v.

V1	EF86
V2 a & b	ECC83
V3 a & b	"
V4 a & b	ECL86
V5 a & b	"
V6	GZ34

PL1 8 v. 1 watt L.E.S.

NOTE:- CIRCUIT DIAGRAM (DRAWING NO. 39) C18 should appear across R29.